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What is claimed is:

1   1.   A video decoding method for decoding a coded picture by

2   using at least one reference picture, wherein said coded picture contains first

3   and second fields and said at least one reference picture exclusively contains

4   a first field, the method comprising:

5   a)   exclusively decoding the first field of the coded picture,

6   whereby the decoded picture contains motion vectors;

7   b)   determining whether the first field of said reference picture or a

8   nonexistent second field of the reference picture is referenced;

9   c)   if the first field of said reference picture is determined to be

10   referenced, performing a motion compensation by using said motion vectors;

11   and

12   d)   if the nonexistent second field of said reference picture is

13   determined to be referenced, correcting said motion vectors so that the

14   corrected motion vectors extend from the first field of said reference picture

15   to said decoded first field and performing a motion compensation by using

16   the corrected motion vectors.

1   2.   A video decoding method for decoding a coded picture by

2   using at least one reference picture, wherein said coded picture contains first

3   and second fields and said at least one reference picture exclusively contains

4   a first field, the method comprising:

5   a)   exclusively decoding the first field of the coded picture,

6   whereby the decoded picture contains motion vectors;

7   b)   determining whether field estimation or frame estimation is to

8   be used for motion compensation;

9   c)   if the field estimation is determined to be used, determining

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10　whether the first field of said reference picture or a nonexistent second field

11　of the reference picture is referenced;

12　　　d)　if the first field of said reference picture is determined to be

13　referenced, performing a motion compensation by using said motion vectors;

14　　　e)　if the nonexistent second field of said reference picture is

15　determined to be referenced, correcting said motion vectors so that the

16　corrected motion vectors extend from the first field of said reference picture

17　to said decoded first field and performing a motion compensation by using

18　the corrected motion vectors; and

19　　　f)　if the frame estimation is determined by step (c) to be used,

20　calculating average values of successive lines of the first field of said

21　reference picture, calculating motion vectors using the average values and

22　performing a motion compensation by using the calculated motion vectors.

1　　　3.　A video decoding method for decoding a coded picture by

2　using at least one reference picture, wherein said coded picture contains first

3　and second fields and is structured as field picture or frame picture, and said

4　at least one reference picture exclusively contains a first field, the method

5　comprising the steps of:

6　　　a)　exclusively decoding the first field of the coded picture,

7　whereby the decoded picture contains motion vectors;

8　　　b)　determining whether the decoded first field is structured as

9　field picture or as frame picture;

10　　　c)　if the decoded first field is determined to be structured as field

11　picture, determining whether the first field of said reference picture or a

12　nonexistent second field of the reference picture is referenced;

13　　　d)　if the first field of said reference picture is determined to be

14　referenced, performing motion compensation on said decoded first field;

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15　　　e)　　if the nonexistent second field of said reference picture is

16　determined to be referenced, correcting said motion vectors so that the

17　corrected motion vectors extend from the first field of said reference picture

18　to said decoded first field and performing a motion compensation by using

19　the corrected motion vectors;

20　　　f)　　if the decoded first field is determined to be structured as frame

21　picture, determining whether field estimation or frame estimation is to be

22　used; and

23　　　g)　　if the field estimation is determined to be used, repeating steps

24　(d) and (e), and if the frame estimation is determined to be used, calculating

25　average values of successive lines of the first field of said reference picture,

26　calculating motion vectors using the average values and performing a motion

27　compensation by using the calculated motion vectors.

1　　　4.　　An apparatus for decoding a coded picture by using at least one

2　reference picture, wherein said coded picture contains first and second fields

3　and said at least one reference picture exclusively contains a first field, the

4　apparatus comprising:

5　　　decoding circuitry for exclusively decoding the first field of the coded

6　picture, whereby motion vectors are decoded;

7　　　motion compensation circuitry;

8　　　motion vector correction circuitry; and

9　　　control circuitry for causing said motion compensation circuitry to

10　perform a motion compensation by using the decoded motion vectors if the

11　first field of said reference picture is referenced,

12　　　said control circuitry causing said motion vector correction circuitry to

13　correct said motion vectors so that the corrected vectors extend from the first

14　field of said reference picture to said decoded first field and causing said

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15   motion compensation circuitry to perform a motion compensation by using

16   the corrected motion vectors if the nonexistent second field of said reference

17   picture is referenced.

1   5.   An apparatus for decoding a coded picture by using at least one

2   reference picture, wherein said coded picture contains first and second fields,

3   and said at least one reference picture exclusively contains a first field, the

4   apparatus comprising:

5   decoding circuitry for exclusively decoding the first field of the coded

6   picture whereby motion vectors are decoded;

7   motion compensation circuitry;

8   motion vector correction circuitry;

9   averaging circuitry; and

10   control circuitry for causing said motion compensation circuitry to

11   perform a motion compensation by using the decoded motion vectors if the

12   first field of said reference picture is referenced,

13   said control circuitry causing said motion vector correction circuitry to

14   correct said decoded motion vectors so that the corrected vectors extend from

15   the first field of said reference picture to said decoded first field and causing

16   said motion compensation circuitry to perform a motion compensation by

17   using the corrected motion vectors, if the nonexistent second field of said

18   reference picture is determined to be referenced,

19   said control circuitry causing said averaging circuitry to calculate

20   average values of successive lines of the first field of said reference picture,

21   causing said motion vector correction circuitry to correct said decoded

22   motion vectors by using the average values and causing said motion

23   compensation circuitry to perform a motion compensation by using the

24   corrected motion vectors, if frame estimation is used.

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1　　6.　The apparatus of claim 5, wherein said control circuitry causes
2　said averaging circuitry to calculate said average values if the decoded field is
3　structured as frame picture.

1　　7.　A computer-readable storage medium containing instruction
2　data for decoding a coded picture by using at least one reference picture,
3　wherein said coded picture contains first and second fields and said at least
4　one reference picture exclusively contains a first field, the instruction data
5　comprising the instructions of:
6　　　a)　exclusively decoding the first field of the coded picture,
7　whereby motion vectors are decode;
8　　　b)　determining whether the first field of said reference picture or a
9　nonexistent second field of the reference picture is referenced;
10　　　c)　if the first field of said reference picture is determined to be
11　referenced, performing motion compensation by using said decoded motion
12　vectors; and
13　　　d)　if the nonexistent second field of said reference picture is
14　determined to be referenced, correcting said motion vectors so that the
15　corrected vectors extend from the first field of said reference picture to said
16　decoded first field and performing a motion compensation by using the
17　corrected motion vectors.

1　　8.　A computer-readable storage medium containing instruction
2　data for decoding a coded picture by using at least one reference picture,
3　wherein said coded picture contains first and second fields and said at least
4　one reference picture exclusively contains a first field, the instruction data
5　comprising the instructions of:
6　　　a)　exclusively decoding the first field of the coded picture,

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7　whereby motion vectors are decoded;

8　　　b)　determining whether field estimation or frame estimation is to
9　be used for motion compensation;

10　　　c)　if the field estimation is determined to be used, determining
11　whether the first field of said reference picture or a nonexistent second field
12　of the reference picture is referenced;

13　　　d)　if the first field of said reference picture is determined to be
14　referenced, performing a motion compensation by using the decoded motion
15　vectors;

16　　　e)　if the nonexistent second field of said reference picture is
17　determined to be referenced, correcting said decoded motion vectors so that
18　the corrected vectors extend from the first field of said reference picture to
19　said decoded first field and performing a motion compensation by using the
20　corrected motion vectors; and

21　　　f)　if the frame estimation is determined to be used, calculating
22　average values of successive lines of the first field of said reference picture,
23　correcting the decoded motion vectors by using the average values and
24　performing a motion compensation by using the corrected motion vectors.

1　　　9.　A computer-readable storage medium containing instruction
2　data for decoding a coded picture by using at least one reference picture,
3　wherein said coded picture contains first and second fields and is structured
4　as field picture or frame picture, said at least one reference picture exclusively
5　contains a first field, the instruction data comprising the instructions of:

6　　　a)　exclusively decoding the first field of the coded picture,
7　whereby motion vectors are decoded;

8　　　b)　determining whether the decoded first field is structured as
9　field picture or as frame picture;

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10　　c)　if the decoded first field is determined to be structured as field

11　picture, determining whether the first field of said reference picture or a

12　nonexistent second field of the reference picture is to be referenced;

13　　d)　if the first field of said reference picture is determined to be

14　referenced, performing a motion compensation by using the decoded motion

15　vectors;

16　　e)　if the nonexistent second field of said reference picture is

17　determined to be referenced, correcting the decoded motion vectors so that

18　the corrected vectors extend from the first field of the reference picture to said

19　decoded first field and performing a motion compensation by using the

20　corrected motion vectors;

21　　f)　if the decoded first field is determined to be structured as frame

22　picture, determining whether field estimation or frame estimation is to be

23　used for motion compensation; and

24　　g)　if the field estimation is determined to be used for motion

25　compensation, repeating the instructions (d) and (e), and if the frame

26　estimation is determined to be used, calculating average values of successive

27　lines of the first field of said reference picture, correcting the decoded motion

28　vectors by using the average values and performing a motion compensation

29　by using the corrected motion vectors.